Chemical Process Safety
HW 1
Due Friday, January 28

1. ARCO Chemical Company agreed to a major revamping of its workplace safety programs at its facilities nationwide and to pay a record $3.4 million fine for alleged workplace violations at its Channelview, Texas, chemicals complex because of an explosion that killed 17 people and charred an area the size of a city block. At the time of the fine it was the largest ever paid to OSHA. ARCO plans to spend an additional $36 million to add safety measures and rebuild the facility. ARCO has stated that although it does not agree with all of the OSHA citations, it believes “its best interests are better served by focussing on improving workplace safety, rather than by contesting or litigating the differences it may have with OSHA.” Do you believe that ARCO did the right thing by not contesting the OSHA fine?

2. When the polyethylene plant of Phillips Petroleum Company exploded and killed 23 people, OSHA fined Phillips $5,666,200. Phillips contested all the citations issued by OSHA and also disputed the legality of OSHA’s method of determining the number of violations. Phillips also stated that this action in no way contradicts its concern for employee and community safety. Do you believe that Phillips did the right thing in contesting the OSHA fine and violations while it proceeded with the rebuilding of the polyethylene plant?

3. Assuming that a person begins smoking a pack of cigarettes each day at the age of 15, what is the probability that this person will die as a result of his/her smoking by the age of 50? By the age of 70? How are these probabilities affected if the person smokes 2 packs a day?

State any assumptions used to arrive at your answers.

4. Problem 1-2 in Crowl and Louvar.
5. Problem 1-4 in Crowl and Louvar
6. Problem 1.7(a) in Crowl and Louvar